U.S. DEPARTMENT OF ENERGY

Environmental Management
Savannah River Operations Office
Cleanup Caucus

Dr. David C. Moody, Manager, U.S. Department of Energy Savannah River Operations Office
Garry Flowers, President & CEO, Savannah River Nuclear Solutions
Dave Olson, President and Project Manager, Savannah River Remediation
Roy Schepens, Vice President, Parsons

Savannah River Site
A Long-Term Asset

Rich History

- Established in 1950 to support national defense missions
  - ✓Produced tritium (only U.S. source) and weapons-grade plutonium
  - ✓Birthplace of modern science of ecology
  - ✓Designated 1st National Environmental Research Park
  - ✓Home to Nation's 1st waste vitrification facility
  - ✓Over 38,000 workers at peak
  - ✓Site covers 198,000 acres (310 square miles)

Today

- Multi-program Site with national missions:
  DOE-Environmental Management (EM) and National Nuclear Security Administration (NNSA)
- EM cleanup and risk reduction mission is top priority
- Complete cleanup of Cold War environmental legacy and honoring regulatory commitments
- Highly skilled federal and contractor workforce >13,000
- Focused Federal oversight and stewardship

EM Mission and Priorities

"The mission of the Office of Environmental Management (EM) is to complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development and government-sponsored nuclear energy research."

- Activities to maintain a safe, secure, and compliant posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Spent nuclear fuel storage, receipt, and disposition
- Special nuclear material consolidation, stabilization and disposition
- High-priority groundwater remediation
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning

The SRS EM Mission

Safely and efficiently clean up environmental legacy

Reduce risk and protect workers and our communities

Work is urgent and essential to health and safety

Where We Started

800+ contaminated facilities, soils and groundwater

M Area "before"

Excess nuclear materials

37 million gallons radioactive liquid tank waste

Ongoing Missions

EM Cleanup
Science Leadership
Innovative Technology
National Security
Nuclear Nonproliferation
Homeland Security
Energy Independence
Defense Programs

The Future

M Area "after"

EM cleanup complete

Return on American Taxpayers' Investment at Savannah River – Key Cleanup Accomplishments

Cleanup Scope	Accomplishments To Date	By FY 2015
Old Style Radioactive Liquid Waste (RLW) Tanks Bulk Waste Removal Effort Complete	8 of 24 Non-Compliant RLW Tanks Bulk Waste Removed	13 of 24 Non-Compliant RLW Tanks Bulk Waste Removal Effort Complete
Old Style RLW Tanks Closed	2 of 24 Non-Compliant RLW Tanks Closed	12 of 24 Non-Compliant RLW Tanks Closed
DWPF Canisters Produced	3,100 of 7,557 Canisters Produced	4,532 of 7,557 Canisters Produced (Saltstone Disposal Facility Industrial Landfill)
SWPF Construction	35% Construction Complete	Construction Complete by September 30, 2013 (scheduled early-finish date). CD-4 by October 2015 (Saltstone Disposal Facility Industrial Landfill)
Legacy TRU Dispositioned	9,800 of 14,000 cubic meters Legacy TRU waste Dispositioned	14,000 cubic meters Legacy TRU waste Dispositioned
Footprint Reduction	Cleanup of 122 of 310 sq. miles Completed (40% of active SRS footprint)	Cleanup of 279 of 310 sq. miles Completed (90% of original active SRS footprint)

Savannah River's 2015 Cleanup Vision

Building on the Recovery Act momentum, the Savannah River team will:

- ✓ **Reduce Savannah River tank waste treatment mission by up to six years and $3 billion in life-cycle costs:**
  - ✓ Rotary Microfiltration and Small Column Ion Exchange fabrication, installation and operations
  - ✓ ARP/MCU equipment/process life extension and extended operations with next generation extractant
  - ✓ Salt Waste Processing Facility performance enhancement
  - ✓ Saltstone enhancements

- ✓ **Continue construction of Salt Waste Processing Facility:** Construction Complete by September 30, 2013 (scheduled early-finish date). CD-4 by October 2015.

- ✓ **Disposition 100% of Legacy TRU waste by end of CY2012:** Continue TRU waste retrieval, treating for disposal, and shipments to WIPP. Disposition of legacy TRU waste is about 70% complete (9,800 m3 retrieved of about 14,000 m3). SRS is on track to complete retrieval and disposal of 100% of this waste by end of CY2012.

- ✓ **Shrink the active Site footprint by 90%:** Complete clean-up of 90%, or 274 sq. miles, of the Site's 310 sq. miles. Work includes remediation of waste units and D&D of excess facilities. Continue to expedite remediation through use of early and removal actions

American Recovery and Reinvestment Act at SRS

Goal: 75% EM footprint reduction achieved by December 2012

Accelerated Cleanup Progress

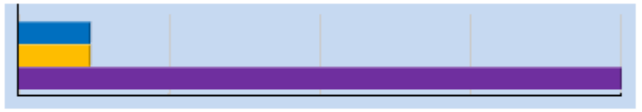
(by September 2011)

- More than 260 buildings (or 2.5 million square feet) demolished
- 81 TRU waste shipments to Waste Isolation Pilot Project in New Mexico
- P and R area Completions: Cleanup P Reactor Disassembly Basin water evaporation; placement of 83,000 cubic yards of grout in P Reactor; installation of 21 P Area Operable Unit remediation wells; and removal of stacks and gantry cranes from P and R reactors
- Over 2,000 of 5,000 cubic meters of legacy TRU waste processed
- 41 projects ongoing to support waste removal and accelerate tank closure

Leveraging strategic investments to meet compliance and maintain cleanup momentum

EM Budget	FY 2010 (Millions)	FY 2012 (Millions)
Environmental Cleanup	1,192	1,224
Community and Regulatory Support	18	10
Safeguards & Security	132	130
Federal Program Direction	54	52
TOTAL EM BUDGET AUTHORITY	1,396	1,416
OTHER SRS BUDGETS	FY 2010	FY 2012
OTHER MISC. PROGRAMS	36	33
TOTAL SRS BUDGET AUTHORITY	2,397	2,479
ARRA Appropriation (2009-2012) $ 1,600 Million		

Recovery Act Performance Metrics at Savannah River

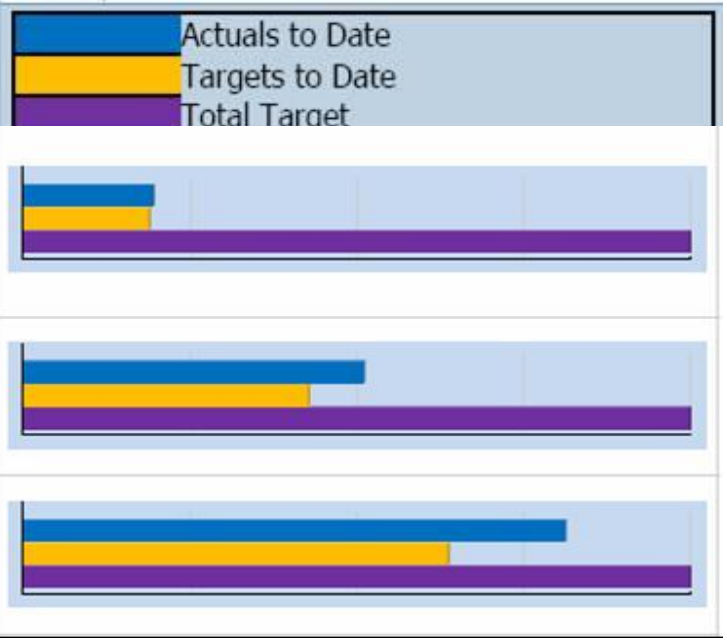
Measure	Actuals to Date	Targets to Date	Total Target	
MLLW disposed (Legacy and NGW) Cubic meters	416	431	755	
Transuranic Waste Dispositioned - Remote Handled Cubic Meters	22.5	22.7	39.3	
Facility Square Footage Demolished Gross Square Feet *	109,113	109,113	917,847	
Industrial Facility Completions Number of Facilities	8	8	14	

Graphic reflects key performance metrics through December 2010

** Also includes facilities stabilized in-situ*

Recovery Act Performance Metrics at Savannah River, continued

Measure	Actuals to Date	Targets to Date	Total Target
Transuranic Waste Dispositioned - Contact Handled Cubic Meters	970.8	943	4,961
CH TRU Waste Processed (Certification Ready) Cubic meters	2,537.9	2,124.9	4,961
LLW Disposed (Legacy and NGW) Cubic meters	14,011	10,994	17,230



Graphic reflects key performance metrics through December 2010

CH TRU = Contact Handled Transuranic
LLW = Low –Level Waste
NGW = Newly Generated

Savannah River Site is a Sound Investment

✓ Accelerate Cleanup and Reduce Risk

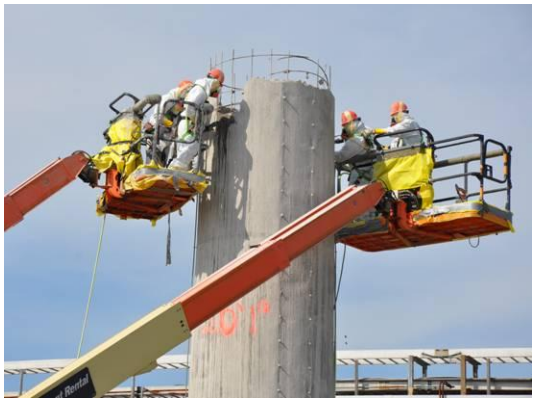
- Disposition of nuclear materials and liquid waste remain high priority projects
- Solve critical cleanup challenges with smart solutions, on time and within budget
- Meet regulatory commitments

Focused Priorities for the SRS Team

Superior performance… Raising the bar continually… Securing the future

✓ Demonstrate Ability to Deliver

- Execute all work safely
- Maintain alignment with regulators on cleanup vision and strategy with support from stakeholders and local communities
- Cut lifecycle costs
- Strong return on taxpayers' investment
- Make significant reductions in risks



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L. David Olson
President and Project Manager
Savannah River Remediation
Savannah River Site

Liquid Waste Operations Overview

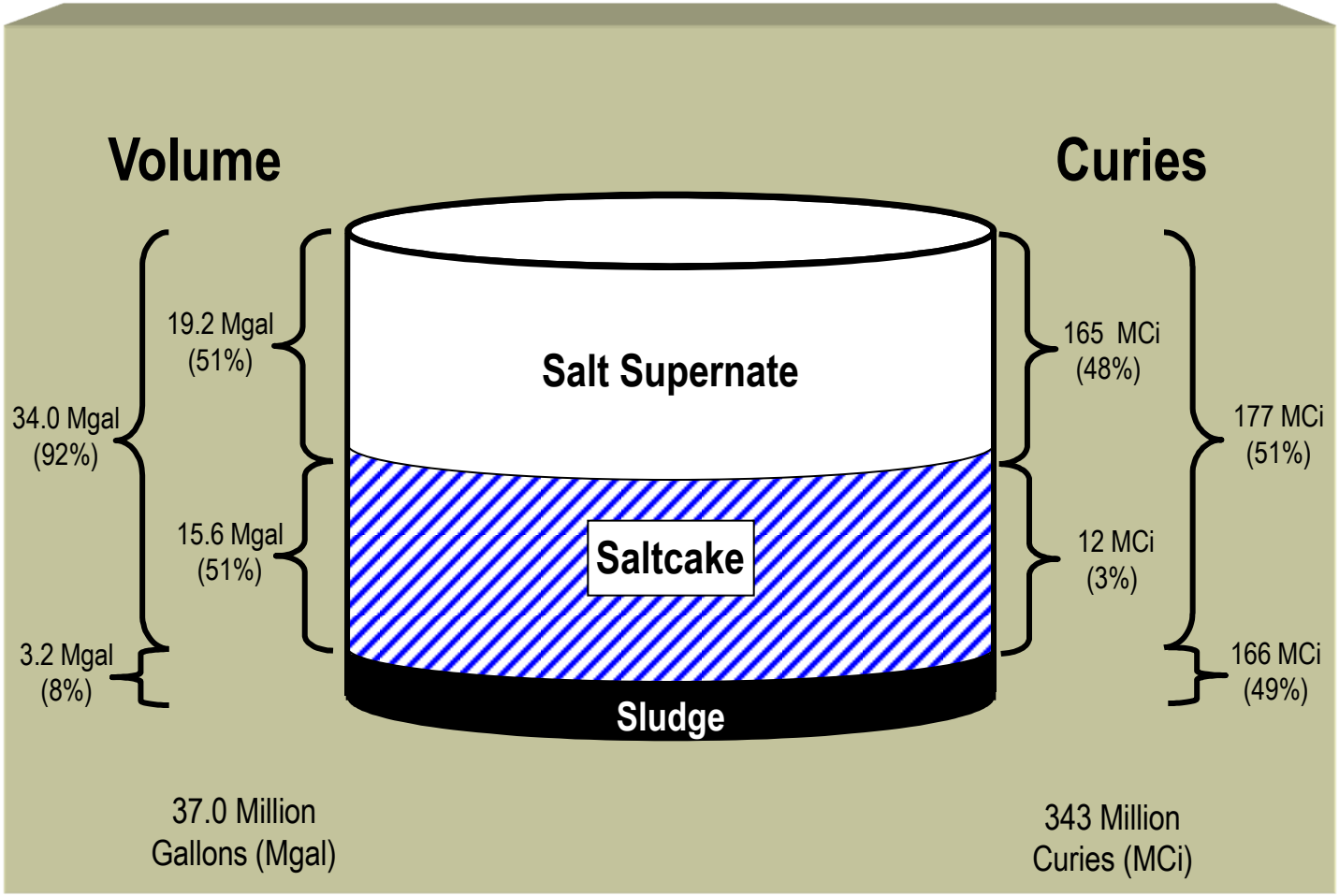
URS | BECHTEL | CH2MHILL | B&W technical services group | AREVA | EnergySolutions | URS Safety Management Solutions

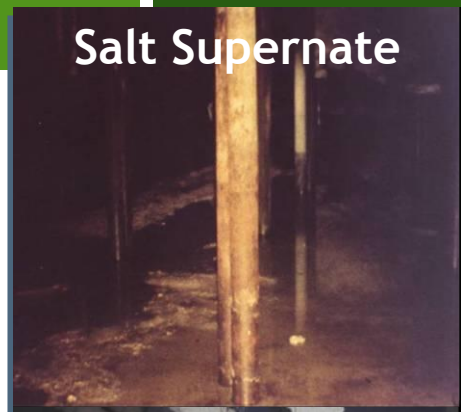
- **Single Liquid Waste Operations contractor**
  - Savannah River Remediation LLC
    - Began work in July 2009
    - Workforce of ~ 2,600 employees
  - Focused on acceleration of liquid waste mission
- **Liquid Waste Funding**
  - FY 2012 budget request: $710.5 million
  - Life cycle cost: $13B (FY08 – FY26)
  - $200 million in American Recovery and Reinvestment Act (ARRA) – near term investment to accelerate tank cleaning and closure

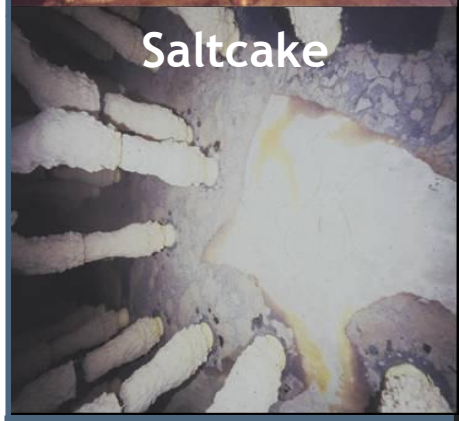
Our Focus: Safety

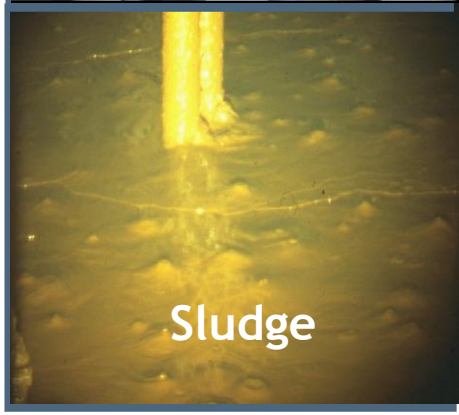
- **SRR safety performance is grounded in the culture**
  - High-hazard, high-risk work daily
- **SRR Operations employees had the lowest Total Recordable Case rate of any major SRS contractor in over 25 years (0.25 in FY10).**
- **23 million safe hours in Liquid Waste construction**
  - Record performance
- **1 million safe hours in Recovery Act work**
- **Radiological Performance since assuming contract (July 1, 2009)**
  - No Adverse Trends or Programmatic Issues
  - No Watch List Items or recurring issues
- **Environmental Performance since assuming the contract**
  - 0 Notice of Violations
  - 0 Reportable Spills
- **No chemical exposures**
- **SRR has completed the Industrial Hygiene Exposure Baseline (one of DOE complex leaders in this area)**

The Challenge



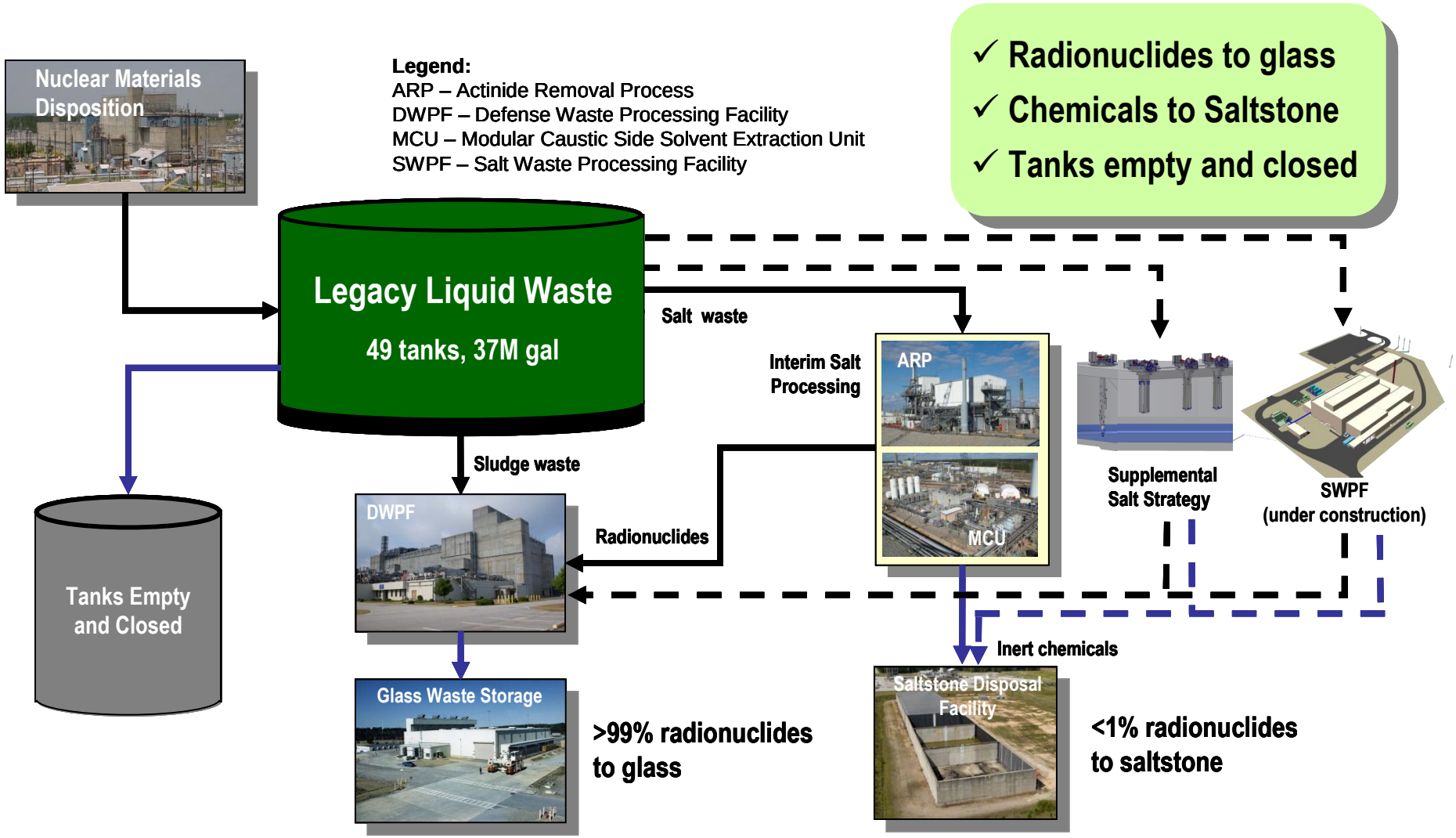






Inventory values as of 12/31/2010

The Solution



Sludge Waste Treatment

- **Recently poured 3,000th canister of glass**
- **DWPF has poured more than 12 million pounds of glassified waste**
- **New transformational technology, 'Bubblers,' recently installed has the capability to nearly double canister output**
  - Developed by Vitreous State Laboratory of Catholic University and tested by Savannah River National Laboratory.
- **DWPF Glass Waste Storage Buildings: Two in place**
- **Underground reinforced concrete vaults**
- **Designed to be interim storage**

Meeting Schedule and Budget!

Near-Term Salt Waste Treatment

- **Operating interim salt processing to support tank closure**
  - 1.4 million gallons processed to date

- **Saltstone facilities being upgraded to improve reliability and to receive organic materials**
  - Processed 800,000 gallons last fiscal year; already processed over 300,000 this fiscal year

MCU Contactors

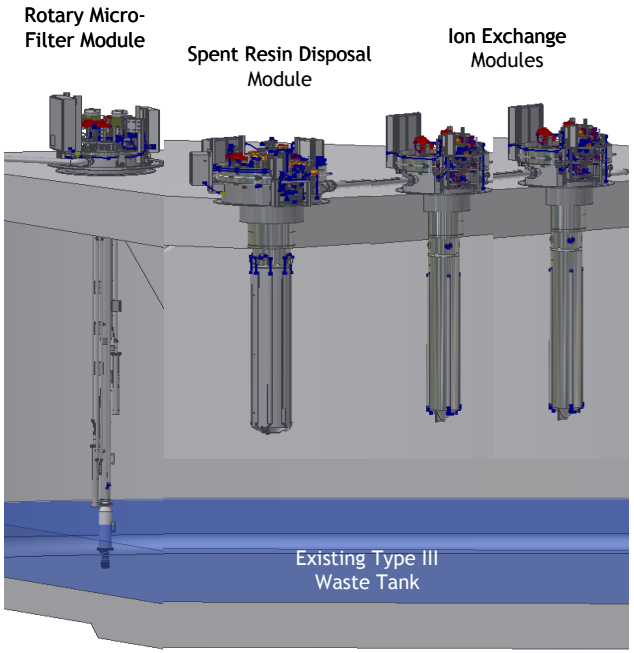
Saltstone

Meeting Schedule and Budget!

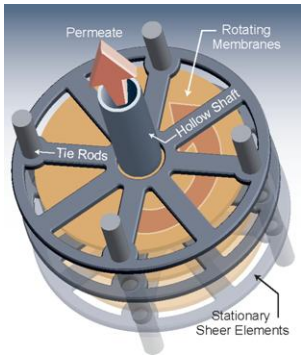
Supplemental Salt Waste Treatment

- **Deploy transformational at-tank treatment technologies**
  - Rotary Microfilter
  - Small Column Ion Exchange
  - Spent Resin Disposal
  - Next Generation Solvent
- **Provide additional salt processing capability**
- **Support accelerated SRS waste retrieval and tank closures**
- **Design in progress for supplemental salt processing capability to start-up in 2013**
  - Transformational technology will accelerate salt waste removal

Small Column Ion Exchange



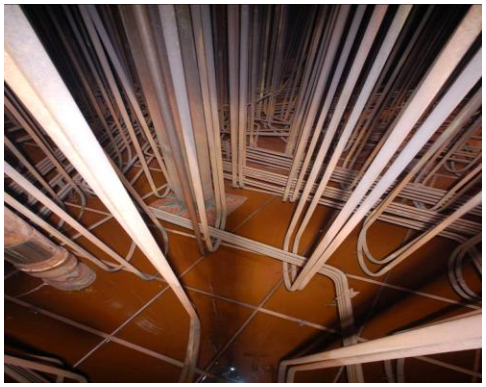
Rotary Microfilters



Meeting Schedule and Budget!

Tank Closure Progression

- **Safe Storage & Surveillance** — Tanks 1, 2, 3, 21, 22, 23, & 24
- **Bulk Waste Removal** — Tank 4 in active BWR; Tanks 7, 9, 10, 11, 13, 14, & 15 preparation
- **Mechanical Heel Removal** — Tank 12 in progress
- **Chemical Cleaning** — Tank 8 being prepped for chemical cleaning and ECC design/real waste testing in progress
- **Cooling Coil Flushing**
- **Annulus Cleaning** — Tank 16 in progress
- **Final Sampling and Isolation** — Tanks 5, 6, 18 & 19 in progress
- **Grout Tank** — Tanks 17 & 20 closed



Meeting Schedule and Budget!

Changing the Landscape

WASTE REMOVAL AND TANK CLOSURE															
	Bulk Waste Removal						Tank Cleaning			Residual					
	Phase I			Remaining Phases											
Tank	Prep	Mix	Transfer	Prep	Mix	Transfer	Mechanical	Chemical	Annulus	Sample	Analyze	Isolate Tank	Prep & Approve Closure Docs	FFA Closure Forecast (cal year)	FFA Closure Commitment (year)
17								N/A	N/A						
20								N/A	N/A						
18								N/A	N/A				Dec-11	2012	2012
19								N/A	N/A			Jun-11	Dec-11	2012	2012
5										Jan-11				2013	2015
6										Feb-11				2013	2015
16									Dec-11					2014	2015
12							Sep-11							2015	2017
8							Apr-13							2015	2017
24							Jan-15		N/A					2018	2022
4						Feb-11								2014	2021
7						May-11								2014	2015
21				Oct-11					N/A					2017	2022
22				Oct-11					N/A					2017	2021
11				Mar-13										2015	2019
3		Dec-12												2017	2022
13	Sep-11													2017	2022
23	Oct-11								N/A					2017	2022
2	Jan-13													2017	2022
10	Sep-13													2017	2021
14	Oct-13													2016	2019
1	Oct-13													2018	2022
15	Jan-14													2016	2021
9	Apr-14													2018	2021

Meeting Schedule and Budget!

American Recovery and Reinvestment Act (ARRA) Work

SRR Liquid Waste Program was awarded $200 million in ARRA funding in September 2009:

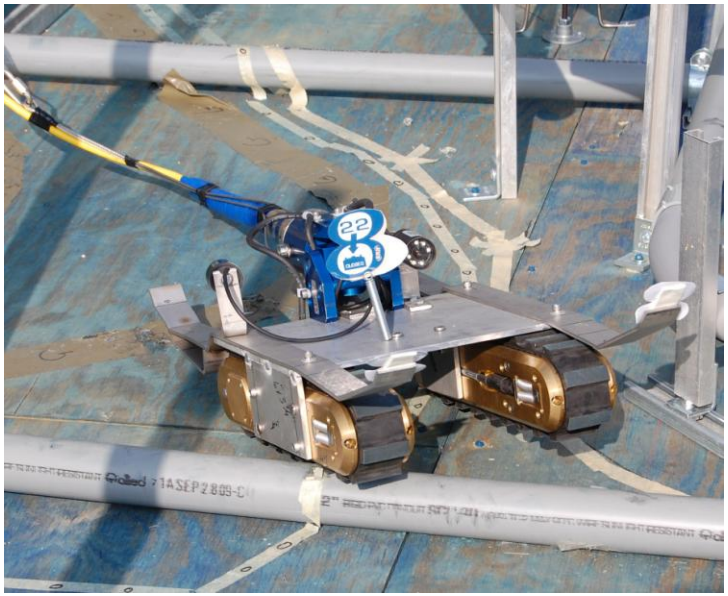
- **Waste Treatment**—Design and install components to enhance Defense Waste Processing Facility (DWPF) and Saltstone operations. (11 operating activities)
- **Salt Disposition Integration**—Install salt processing infrastructure to support Salt Waste Processing Facility (SWPF). (12 operating activities)

- **Tank Closure Infrastructure**—Equipment installation and infrastructure modifications to support tank closure activities. (14 operating activities)
- **Facility Operations**—Design and install modifications to support enhanced salt and sludge waste removal. (4 operating activities)

Expected Results

- **Next 12 months**
  - Deploy additional technology improvements in the Liquid Waste System
  - Near-term investment for lifecycle acceleration
- **Results**
  - Close 22 tanks by 2018 (4 years ahead of FFA)
- **Complete HLW Mission 2026**
  - Realize Six Year, $3 billion lifecycle savings
- **Demonstrate transformational technologies for deployment in the DOE Complex**

Meeting Schedule and Budget!



Summary

- **Our primary focus is on safe work**
  - Protect workers, public, environment
- **SRS embraces common goals and values with community that emphasize risk reduction**
- **SRS is committed to deploying transformational technologies that will accelerate liquid waste mission completion by six years and save taxpayers $3.2B**
  - Focus on accelerating salt processing with application of transformational technologies
  - Continue to reduce risk with tank waste removal and cleaning ahead of FFA commitments
- **Continue to be good stewards of taxpayers' money**
  - Accelerating the cleanup saves money long-term
  - Technology is transferred to other sites, bringing more cost-savings

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Garry Flowers
President & CEO
Savannah River Nuclear Solutions
Savannah River Site

SRNS EM Mission and Priorities

"The SRNS mission is to safely and efficiently operate and clean up the Site while protecting the public health and the environment."

- ✓ Savannah River National Laboratory
- ✓ Used nuclear fuel storage, receipt, and disposition
- ✓ Special nuclear material consolidation, processing, and disposition
- ✓ Area Closures including soil and groundwater remediation
- ✓ Transuranic and mixed/low-level waste disposition
- ✓ Excess facilities deactivation and decommissioning
- ✓ Infrastructure upgrades

American Recovery & Reinvestment Act
More Opportunities for Success

Jobs & Economic Stimulation

- Budget: $1.4 billion
- $459 million awarded in sub-contracts
  - $287 million to small business, including $165 million within Central Savannah River Area (CSRA)
- Jobs saved or created: 3,200

Accelerated Cleanup

✓ 3 reactors decommissioned
  - P and R Reactors
  - HWCTR

✓ Legacy transuranic waste
  - 5,000 m^3 disposed

Near-term Goal

✓ Achieve 75% footprint reduction by 2012

Safety Performance

- ✓ **Among the Safest Total Recordable Case Fiscal Year Rates for Operations & Subcontractors under current DOE Reporting structure (since 1985)**
  - Operations & Subcontractors recognized by National Safety Council
  - Construction currently at >25 million hours without a lost time injury (since June 1998)

- ✓ **Savannah River National Laboratory**
  - Safest in the DOE Complex for six consecutive years
  - Injury-free in calendar year 2010

- ✓ **Voluntary Protection Program**
  - VPP Recertification
  - STAR of Excellence and 3rd Legacy of STARS

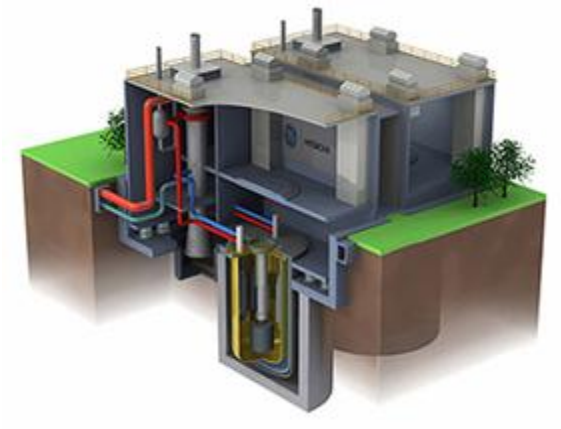
Cost and Schedule Achievements

- ✓ SRNS achieved 97% of objective work scope milestones in FY10 on or ahead of schedule. Major accomplishments include:
  - H Canyon dissolved 624 kgs of High Enriched Uranium (HEU) metal which was blended down to 24 Low Enriched Uranium (LEU) trailers (about 20,700 kgs)
  - HB Line dissolved 76.4 kgs of DE-3013 plutonium oxide and 7 drums of Low Assay Plutonium
  - Completed scheduled destructive evaluations and non-destructive evaluations in support of the SRS 9975/3013 surveillance program, providing objective evidence that Pu can be safely stored in accordance with DOE standards
  - Integrated 1,400 new temporary workers along with 800 retained site workers and completed FY2010 ARRA scope ahead of schedule FY10
- ✓ Cost transparency initiatives reduce non-value overhead scope and increase focus of work accomplishments
- ✓ Systematically review baseline and project schedule to identify opportunities for cost improvement
- ✓ Continuous Improvement program enhances work processes/environment to increase safety and efficiency

Savannah River National Laboratory

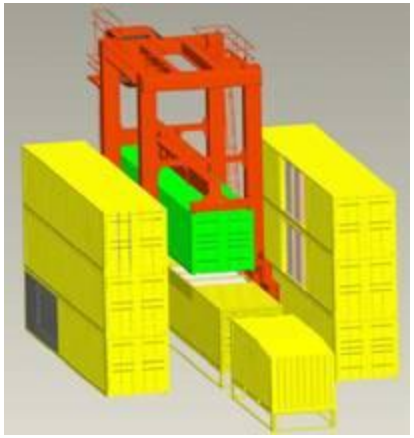
Environmental Management

- Waste treatment
- Materials stabilization and disposition
- Remediation and cleanup
- Assessments and verification



Energy Security

- Hydrogen storage technology
- Production of hydrogen
- Renewable energy research



National and Homeland Security

- Tritium technology
- Plutonium technology
- Homeland Security support
- Nonproliferation technology
- National law enforcement
- Nuclear forensics

Workforce Transition

SRNS is implementing a three-phase workforce restructuring.

Phase 1	Phase 2	Phase 3
Voluntary Separation (December 2010) 327	Involuntary Separation (February 2011) 342	Planned for August 2011 ~700

- ✓ Transition Center staffed with SRNS Workforce Services personnel available beginning in March 2011
- ✓ Job fairs planned for April and September, with area businesses and educational institutions invited to participate

SRNS delivers cleanup results

- ✓ Achieved 52% EM footprint reduction
- ✓ Completed cleanup of 122 of 233 square miles (30 month total project goal
- ✓ M Area Closure (August 2010)
- ✓ Reactor decommissioning 75% complete
- ✓ Dispositioned 1,030 cubic meters (contact handled and remote handled) of TRU waste

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Roy Schepens
Vice President
Parsons

Salt Waste Processing Facility

Infrastructure and Technology

- Contractor for Salt Waste Processing Facility (SWPF) project *[design, construct, and operate for one year]*
- Process over 33 million gallons of stored high-activity radioactive salt waste, reducing a significant hazard to the public and environment at the Savannah River Site
- Support DOE's highest SRS priority to close tank farms; reduce risk and complete the DOE EM cleanup mission
- December 2008: Final design completed and full construction of first-of-kind facility authorized by DOE
- December 2010: Set Cesium Removal Contactors
- Safety of our workforce is Parsons 1st priority

SWPF Project Progression (SRS J-Area)

December 2010

June 2008

August 2009

March 2010

Cesium Removal Contactors Arrival & Installation at SWPF

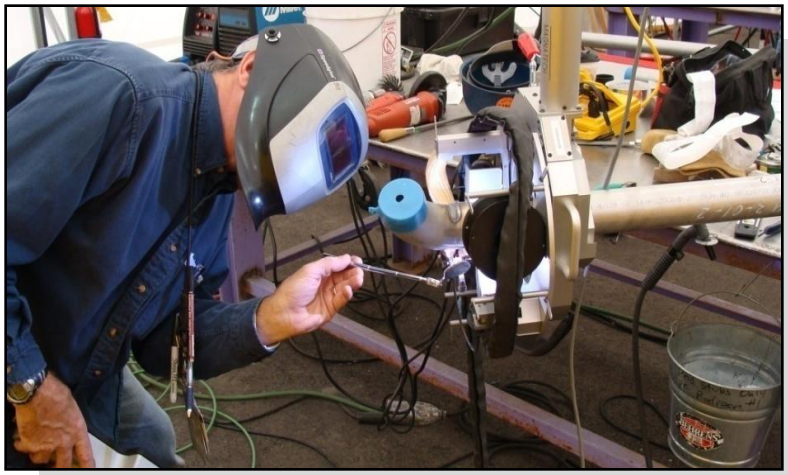
SWPF: Proven Technology and Performance

- **Proven Technology:** Removal of radioactivity from bulk of stored waste at SRS

- **Schedule:** Complete construction – September 2013 [current scheduled early finish date]. Start radioactive operations July 2014 (early finish date) – October 2015 (80% confidence)

- **Cost:** Total Project Cost projected below the DOE Performance Baseline of $1.339 billion

- **Capacity Increases:** Likely with Additional Testing of Process Chemistry Improvements



Setting the Right Standards in Welding Performance Onsite and at Supplier Facilities

SWPF Project/Construction Management

- **Supplier Oversight Plans In Place:** Full-time Parsons oversight in supplier facilities for SWPF critical components ensures safety and quality standards are met
- **Active Construction And Engineering Team:** Engineering proactively working real-time in support of constructability reviews; engineered equipment fabrication to meet construction's needs
- **Early Operations Involvement:** Full-time involvement from start of design and participation in constructability, maintenance, operations, and commissioning reviews
- **Pipe Welding:** Onsite pipe fabrication facility in full operation
- **HVAC Installation:** Set HEPA filters and large exhaust fans

SWPF – Onsite Fabricated Piping

SWPF – Walls to 139’ Exhaust HEPA Filter Room

SWPF Construction Safety

CSSX/CFF Full Scale Integrated Test Operation

- Testing Complete – Demonstrated 100% Capacity and Exceeded Cesium Removal Decontamination Factor
- Robust Operating Envelope Developed to Provide Flexibility of Operations

Parsons Delivering Results at SRS 2011-2012 SWPF Goals

- Continue construction of facility walls, decking and support areas
- Fabricate and install construction engineered equipment
- Continue with piping fabrication and installation
- Continue HVAC installation
- Prepare for startup, which advances SRS EM cleanup and risk reduction goals